UDACITY

PROJECT SPECIFICATION

Train a Smartcab to Drive

Implement a basic driving agent

CRITERIA	MEETS SPECIFICATIONS
Agent accepts inputs	Student is able to implement the desired interface to the agent that accepts specified inputs.
Produces a valid output	The driving agent produces a valid output (one of None, 'forward', 'left', 'right') in response to the inputs.
Runs in simulator	The driving agent runs in the simulator without errors. Rewards and penalties do not matter - it's okay for the agent to make mistakes.

Identify and update state

CRITERIA	MEETS SPECIFICATIONS
Reasonable states identified	Student has identified states that best model the agent in the given environment. Justification for inclusion or exclusion of each available input stream is given.
Agent updates state	The driving agent updates its state when running, based on current input. The exact state does not matter, and need not be correlated with inputs, but it should change during a run.

Implement Q-Learning

CRITERIA	MEETS SPECIFICATIONS
Agent updates Q-values	The driving agent updates a table/mapping of Q-values correctly, implementing the Q-Learning algorithm.
Picks the best action	Given the current set of Q-values for a state, it picks the best available action.
Changes in behavior explained	Student has reported the changes in behavior observed, and provided a reasonable explanation for them.

Enhance the driving agent

CRITERIA	MEETS SPECIFICATIONS
Agent learns a feasible policy within 100 trials	The driving agent is able to consistently reach the destination within allotted time, with net reward remaining positive.
Improvements reported	Specific improvements made by the student beyond the basic Q-Learning implementation have been reported, including at least one parameter that was tuned along with the values tested. The corresponding results for each value are also reported.
Final agent performance discussed	Student describes what an optimal policy for the driving agent would be for the given environment. The policy of the final driving agent is compared to the stated optimal policy, and discussion is made as to whether the final driving agent commits to unusual or unexpected behavior based on the defined states.

Student FAQ